



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

SWA25A-6
Job Sheet 172855



Part No: SWA25A-6 **25,000 LBS** Job Qty: 1 ea

Part Name: Electric Swivel ~~10,000~~ lb Safe Work Load (6,818 kg)



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 2/22/18

Job Tracking No:

Due Date: 3/2/18

Created By: Marie Lajeunesse

Type: SOLD

Description:

Note: SWA25A REV1 IPP REV:A 18.02.20 NEW ISSUE DD VERF:DP

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		3/1/18	0.00	0.00	Start Up Small Fab-2		
110	Small Fab	1 pcs		3/2/18	0.00	2.00	Small Fab-6		AP
120	QC	1 pcs		3/2/18	0.00	0.00	QC5		18.3.16
130	Packaging	1 pcs		3/2/18	0.00	0.00	Packaging3		SmR
140	QC21-FG	1 Ea		3/2/18	0.00	0.00	QC21		

Part Op 110 - Assemble as per DWG. Sheet 1 ***All assembly to be done in accordance with SWA25A swivel manual*** Engrave Descriptions: T/N And / or S/N number as required Using Marktronic engraver as per DWG. Laser engrave dart logo as per DWG.
130 - Bag and tag

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
✓ 188-FPSS-1032-1/2	Set Screw	1 Ea (1 ea)	90-Start up Operation	5037670 27240
✓ 188-FSCS-1032-5/8	Wire Clamp Screw	4 Ea (4 ea)	110-Small Fab	5031242 5031242
✓ 600.1319	Up Decal	1 Ea (1 ea)	110-Small Fab	5036704 5037066
✓ EL-PLUG-F	3-Prong Female Spade Plug	1 Ea (1 ea)	110-Small Fab	5031223
✓ EL-PLUG-M	3-Prong Male Spade Plug	1 Ea (1 ea)	110-Small Fab	5031224
✓ EL616-ARTIC	6 Wire	1 (1 ea)	110-Small Fab	5047770
✓ SWA10A-1100	Upper DU Bearing	1 Ea (1 ea)	110-Small Fab	5037480
✓ SWA10A-1200	Lower DU Bearing	1 Ea (1 ea)	110-Small Fab	5036190
✓ SWA10A-1300	Roller Thrust Bearing	1 Ea (1 ea)	110-Small Fab	5036727
✓ SWA10A-1400	Circlip	1 Ea (1 ea)	110-Small Fab	5036191
✓ SWA10A-1800	Cover	1 Ea (1 ea)	110-Small Fab	5031917
✓ SWA10A-300	Bearing Housing	1 Ea (1 ea)	110-Small Fab	5034293
✓ SWA10A-400	Thrust Washer	1 Ea (1 ea)	110-Small Fab	5049928
✓ SWA10A-500	Semi-Rings	1 Ea (1 ea)	110-Small Fab	5029393
✓ SWA10A-600	Collar	1 Ea (1 ea)	110-Small Fab	5034519
✓ SWA10A-700A	Wire Clamp	2 (2 ea)	110-Small Fab	5051600
✓ SWA25A-110	Lower End	1 Ea (1 ea)	110-Small Fab	5047070
✓ SWA25A-210	Upper End Swivel	1 Ea (1 ea)	110-Small Fab	5051373
✓ SWA6A-1000 69525K16	Female Spade Terminal - 1/4"	8 Ea (8 ea)	110-Small Fab	5031234
✓ SWA6A-2000	1/8" Female Spade Connector	4 Ea (4 ea)	110-Small Fab	5027244
✓ SWA6A-800C	Connector Bushing	1 Ea (1 ea)	110-Small Fab	5029421
✓ SWA6A-900D	Rotary Contact	1 (1 ea)	110-Small Fab	5049654

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
90-Start up Operation	188-FPSS-1032-1/2	1	100	0
110-Small Fab	188-FSCS-1032-5/8	4	184	0
	600.1319	1	250	0
	EL-PLUG-F	1	38	0
	EL-PLUG-M	1	35	0
	EL616-ARTIC	1	0	0
	SWA10A-1100	1	6	0
	SWA10A-1200	1	10	0
	SWA10A-1300	1	10	0
	SWA10A-1400	1	10	0
	SWA10A-1800	1	14	0
	SWA10A-300	1	14	0
	SWA10A-400	1	0	0
	SWA10A-500	1	0	0
	SWA10A-600	1	16	0
	SWA10A-700A	2	0	0
	SWA25A-110	1	0	0
	SWA25A-210	1	0	0
	SWA6A-1900	8	88	0
	SWA6A-2000	4	100	0
	SWA6A-800C	1	0	0
	SWA6A-900D	1	0	0

Specifications

DART
AEROSPACE

Container No: S045753



Part: SWA25A-6

Job No: 172855

Serial No/Batch: S045753

Revision: SWA25A

Inspector:

Dart Aerospace Ltd.
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Hawkesbury, ON K6A 1K7
CANADA
TEL.: 1 613 632-5200
Email: sales@dartaero.com
www.dartaerospace.com

jeunesse.marie

Date: 02/27/18

DQA: _____ Date: _____

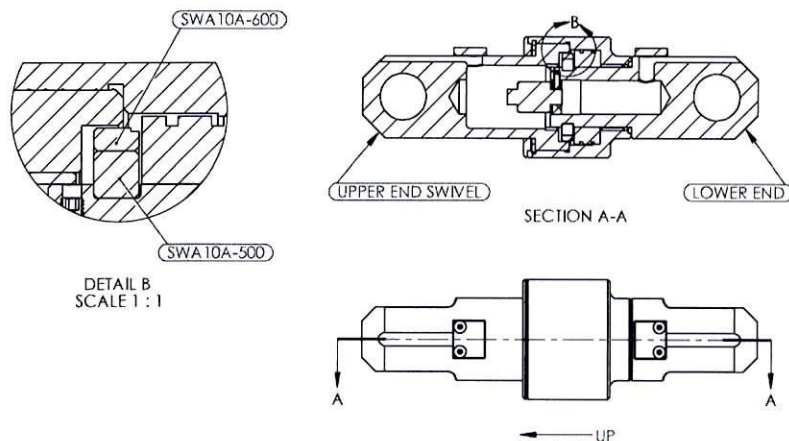
WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

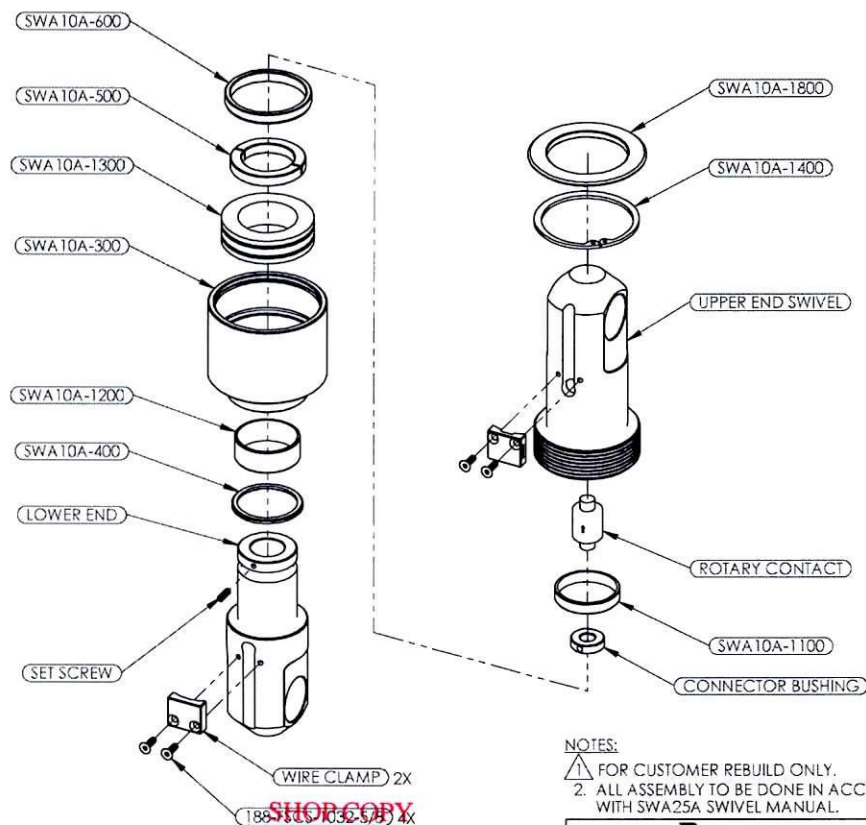
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____	DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐	AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐			
Date :	Step #:	QTY Effective :		MRB (QSI042) Approval	
Description Work Order Deviation		Disposition		Completed By	
				Lead hand / Supervisor Approval Verification	
				QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY			
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐
Past Expiry Date ☐	Manufacturing Process ☐				
Misidentified ☐	Past Due ☐	OTHER : _____			

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2/GTY	3/GTY	4/GTY	6/GTY	8/GTY	R/O	Part #	Description	Material	R/O INFORMATION OR SPECIFICATIONS
1	1	1	1	1		SWA25A-100	LOWER END		
-	-	-	-	-		SWA25A-110	LOWER END		
1	1	1	1	1		SWA25A-200	UPPER END SWIVEL		
-	-	-	-	-		SWA25A-210	UPPER END SWIVEL		
1	1	1	1	1		SWA10A-300	BEARING HOUSING		
1	1	1	1	1		SWA10A-600	THRUST WASHER		
1	1	1	1	1		SWA10A-500	SEMI-RINGS		
1	1	1	1	1		SWA10A-600	COLLAP		
2	2	-	-	-		SWA10A-700	WIRE CLAMP		
-	-	2	2	2		SWA10A-700A	WIRE CLAMP		
1	-	-	-	-		SWA6A-800A	CONNECTOR BUSHING		
-	1	1	-	-		SWA6A-800B	CONNECTOR BUSHING		
-	-	-	1	-		SWA6A-800C	CONNECTOR BUSHING		
1	-	-	-	-	R/O	SWA6A-900A	ROTARY CONTACT		MERCOTAC #230
-	1	-	-	-	R/O	SWA6A-900B	ROTARY CONTACT		MERCOTAC #330
-	-	1	-	-	R/O	SWA6A-900C	ROTARY CONTACT		(KAMAN 81201NF)
-	-	-	1	-	R/O	SWA6A-900D	ROTARY CONTACT		MERCOTAC #630
-	-	-	-	1	R/O	SWA6A-900E	ROTARY CONTACT		MERCOTAC #830
1	1	1	1	1		SWA10A-1100	UPPER DU BEARING		
1	1	1	1	1	R/O	SWA10A-1200	LOWER DU BEARING		(KAMAN MB5020DU)
1	1	1	1	1	R/O	SWA10A-1300	POLLER THRUST BEARING		
1	1	1	1	1	R/O	SWA10A-1400	CIRCLIP		(KAMAN N3000 350 SPP)
1	1	1	1	1		SWA10A-1800	COVER		
4	6	4	8	12	R/O	SWA6A-1900	1/4" FEMALES PADE CONNECTOR		(MCMaster-CARR #6952916)
-	-	4	4	4	R/O	SWA6A-2000	1/8" FEMALES PADE CONNECTOR		(MCMaster-CARR #6952914)
1	1	1	1	1	R/O	EL-PLUG-F	FEMALE PLUGS	PE High Density	(MCMaster-CARR #721666)
1	1	1	1	1	R/O	EL-PLUG-M	MALE PLUGS	PE High Density	(MCMaster-CARR #721665)
4	4	4	4	4	R/O	188-FPS-1032-5/8	FLAT SOCKET CAP SCREW	S.S.	10-32 x 5/8 (MCMaster-CARR #92210A3031)
-	-	-	-	1	R/O	188-FPS-1032-3/8	SET SCREW	S.S.	10-32 x 3/8 (MCMaster-CARR #94355A335)
-	-	-	1	-	R/O	188-FPS-1032-1/2	SET SCREW	S.S.	10-32 x 1/2 (MCMaster-CARR #94355A337)
1	1	1	-	-	R/O	188-FPS-1032-5/8	SET SCREW	S.S.	10-32 x 5/8 (MCMaster-CARR #92311A400)
-	1	-	-	-	R/O	EL314S-TOW	3 WIRE		6 FT. (TECCAR, REL 314SJ TOW 3/14)
-	-	1	-	-	R/O	EL414-ARTIC	4 WIRE		6 FT. (TRUCK & AUTO SUPPLY, REL 414-ARTIC 4/14)
-	-	-	1	-	R/O	EL616-ARTIC	6 WIRE		6 FT. (TRUCK & AUTO SUPPLY, REL 616-ARTIC)
-	-	-	-	1	R/O	EL818-ARTIC	8 WIRE		6 FT. (TRUCK & AUTO SUPPLY, REL 818-ARTIC)
1	1	1	1	1	R/O	600.1319	UP DECAL		

[illegible]

NOTES:

1. FOR CUSTOMER REBUILD ONLY.
2. ALL ASSEMBLY TO BE DONE IN ACCORDANCE WITH SWA25A SWIVEL MANUAL.

	
TITLE SWA25A SWIVEL	
DWG NO. SWA25A	REV 1
MATL.	DRAWN BY: GILBERT
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES FRACTIONS USE $\frac{XXX}{Y}$.005 $\frac{X}{Y}$.01 $\frac{X}{Y}$.1 ANGLES = $^{\circ}$	APPROVED: <i>D. Wed</i> HEAT FINISH SPEC
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R 2. DIMENSIONAL LINES APPLY AFTER PLATING	USED ON MODEL _____ _____ _____
SCALE 1:4	DATE 11/14/2012
SHEET 1 OF 2	

188-1115-1032-57B 4X
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 172855 *LM*

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

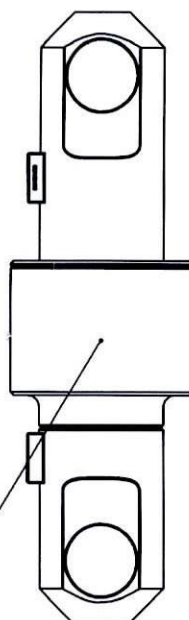
Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval		
Description Work Order Deviation				Disposition					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

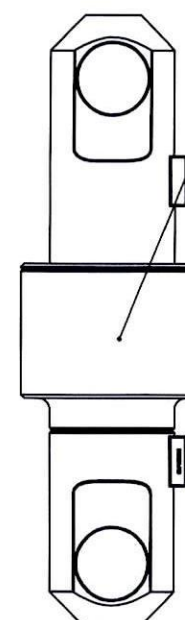
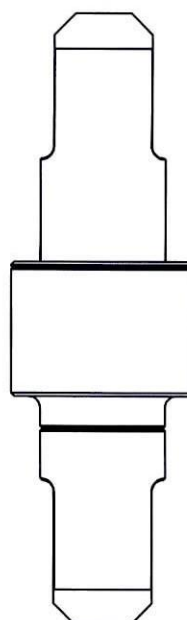
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REVISIONS					
REV	ECR	DESCRIPTION	DATE	INITIAL	APPROVED

ENGRAVE P/N, S/N, SWL



LASER ENGRAVE DART LOGO



DART AEROSPACE	
TITLE SWA25A SWIVEL	
DWG NO. SWA25A	REV 1
MAT'L	DRAWN BY: GILBERT
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	APPROVED <i>D Weid</i>
.XXX ± .005 FRACTIONS ± 1/8	HEAT
.XX ± .01 ANGLES ± 5°	TREAT
.X ± .1	FINISH
1. BREAK ALL SHARP EDGES .015 x 45° OR .015R	SPEC
2. DIMENSIONAL LIMITS APPLY AFTER PLATING	USED ON MODEL
SCALE 1:4	DATE 11/14/2012 SHEET 2 OF 2

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
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								Lead hand / Supervisor Approval Verification	
								QC / QA Coordinator Approval	
Root Cause		FAULT CATEGORY							
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Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
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Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER :							
Misidentified ☐	Past Due ☐								

Work Order SWA25A-6

Customer _____

Number of Wires 6Date 2018/03/16Serial Number S045753

Number of Cycles	Load (Lbs.)	Action	Pass/Fail
1	25,000	Check for Conductivity against all wires.	- Pass
1	25,000	Check all wires for grounding against swivel body.	- Pass
1	12,500	Check for Conductivity against all wires.	- Pass
1	12,500	Check all wires for grounding against swivel body.	- Pass
1	6,250	Check for Conductivity against all wires.	- Pass
1	6,250	Check all wires for grounding against swivel body.	- Pass
1	0	Check for Conductivity against all wires.	- Pass
1	0	Check all wires for grounding against swivel body.	- Pass

Test Conducted By: Emilie BoucherSignature: 
QC 5 Small FAB / QA

Technician